



12SY7

PENTAGRID CONVERTER

SINGLE-ENDED METAL TYPE

For use with 12-cell storage-battery supply

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage. 12.6 ac or dc volts
Current. 0.15 amp

Direct Interelectrode Capacitances:

Grid No.3 to All Other Electrodes (RF Input) 9.5• μf
Plate to All Other Electrodes (Mixer Output) 12• μf
Grid No.1 to All Other Electrodes (Osc. Input) 7• μf
Grid No.3 to Plate 0.13 max. • μf
Grid No.1 to Grid No.3 0.15 max. • μf
Grid No.1 to Plate 0.06 max. • μf
Grid No.1 to Shell, Grid No.5, and All
Other Electrodes Except Cathode 4.4 μf
Grid No.1 to Cathode 2.6 μf
Cathode to Shell, Grid No.5, and All
Other Electrodes Except Cathode 5 μf

Mechanical:

Mounting Position. Any
Maximum Overall Length 2-5/8"
Maximum Seated Length. 2-1/16"
Maximum Diameter 1-5/16"
Bulb Metal Shell, MT-8G
Base Small Wafer Octal 8-Pin
Basing Designation for BOTTOM VIEW 8R

Pin 1 - Shell, Grid No.5
Pin 2 - Heater
Pin 3 - Plate
Pin 4 - Grids No.2 & No.4
Pin 5 - Grid No.1
Pin 6 - Cathode
Pin 7 - Heater
Pin 8 - Grid No.3



CONVERTER

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE. 300 max. volts
GRIDS-No.2 and No.4 (SCREEN) VOLTAGE . . . 100 max. volts
GRIDS-No.2 and No.4 SUPPLY VOLTAGE . . . 300 max. volts
PLATE DISSIPATION. 1.0 max. watt
GRIDS-No.2 & No.4 DISSIPATION. 1.0 max. watt
TOTAL CATHODE CURRENT. 14 max. ma.
GRID-No.3 (CONTROL GRID) VOLTAGE:
Negative bias value. 50 max. volts
Positive bias value. 0 max. volts
PEAK HEATER-CATHODE VOLTAGE:
Heater negative with respect to cathode 90 max. volts
Heater positive with respect to cathode 90 max. volts

• With shell connected to cathode.

JUNE 20, 1946

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

TENTATIVE DATA

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PENTAGRID CONVERTER

Characteristics - Separate Excitation: *

| | | | | |
|--|----------------|----------------|----------------|--------|
| Plate Voltage. | 26.5 | 100 | 250 | volts |
| Grids-No.2 & No.4 Voltage | 26.5 | 100 | 100 | volts |
| Grid-No.3 Voltage. | -1 | -2 | -2 | volts |
| Grid-No.1 (Oscillator Grid) Resistor | 20000 | 20000 | 20000 | ohms |
| Plate Resistance (Approx.) | - | 0.5 | 1.0 | megohm |
| Conversion Transconductance | 250 | 425 | 450 | μmhos |
| Conversion Transconductance (Approx.) | 8 [●] | 2 [□] | 2 [□] | μmhos |
| Plate Current. | 0.45 | 3.3 | 3.5 | ma. |
| Grids-No.2 & No.4 Current | 1.7 | 8.5 | 8.5 | ma. |
| Grid-No.1 Current. | 0.1 | 0.5 | 0.5 | ma. |
| Total Cathode Current. . . | 2.25 | 12.3 | 12.5 | ma. |

NOTE: The transconductance between grid No.1 and grids No.2 and No.4 connected to plate (not oscillating) is approximately 4500 μmhos under the following conditions: grids No.1, No.3, No.5 and shell at 0 volts; grids No.2 and No.4 and plate at 100 volts. Under the same conditions, the plate current is 27 milliamperes, and the amplification factor is 13.

* The characteristics shown with separate excitation correspond very closely with those obtained in a self-excited oscillator circuit operating with zero bias.

● With grid-No.3 bias of -6 volts.

□ With grid-No.3 bias of -35 volts.

The curves under Type 6SA7 also
apply to the 12SY7.

JUNE 20, 1946

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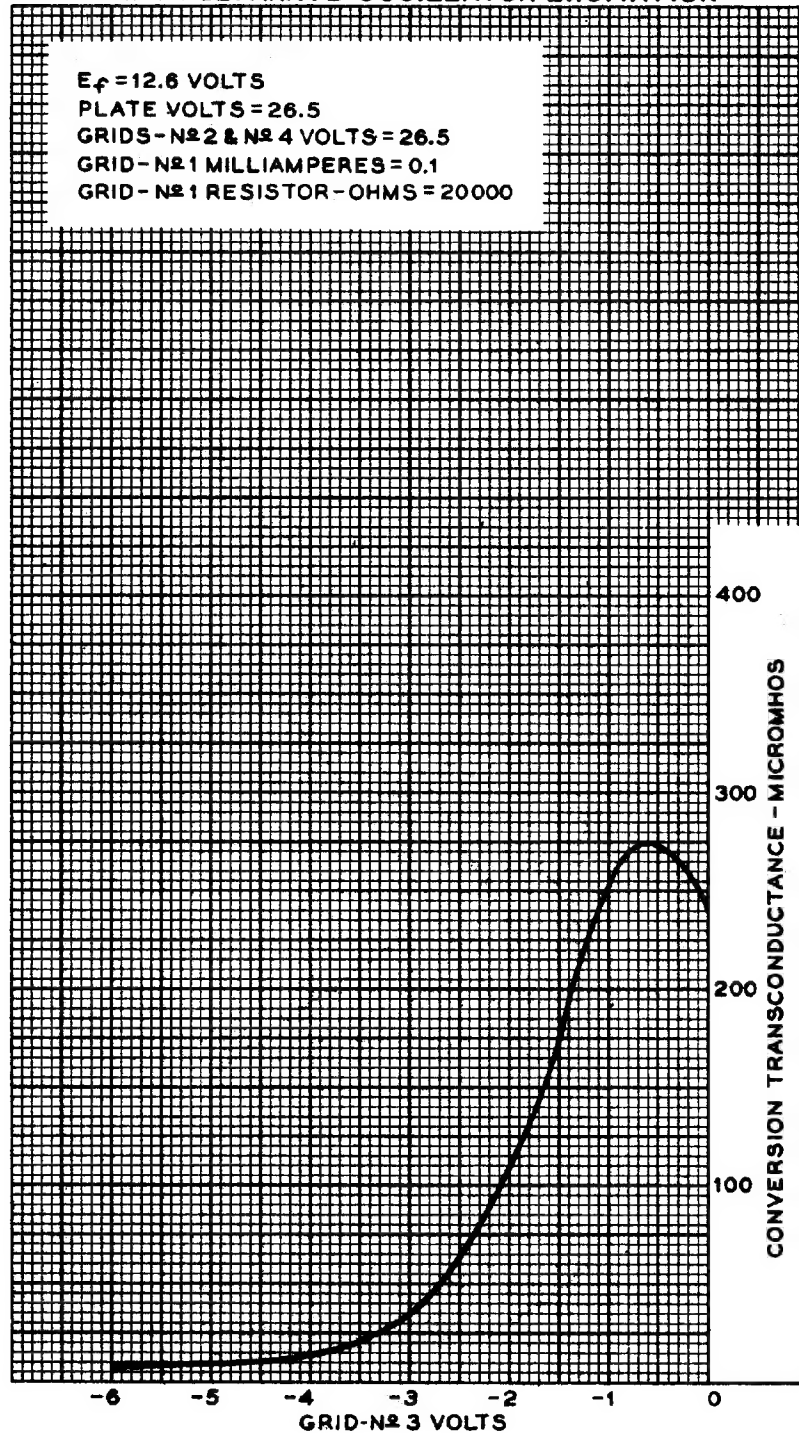
TENTATIVE DATA



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12SY7 OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

$E_f = 12.6$ VOLTS
PLATE VOLTS = 26.5
GRIDS - N^o 2 & N^o 4 VOLTS = 26.5
GRID - N^o 1 MILLIAMPERES = 0.1
GRID - N^o 1 RESISTOR - OHMS = 20000



JULY 29, 1946

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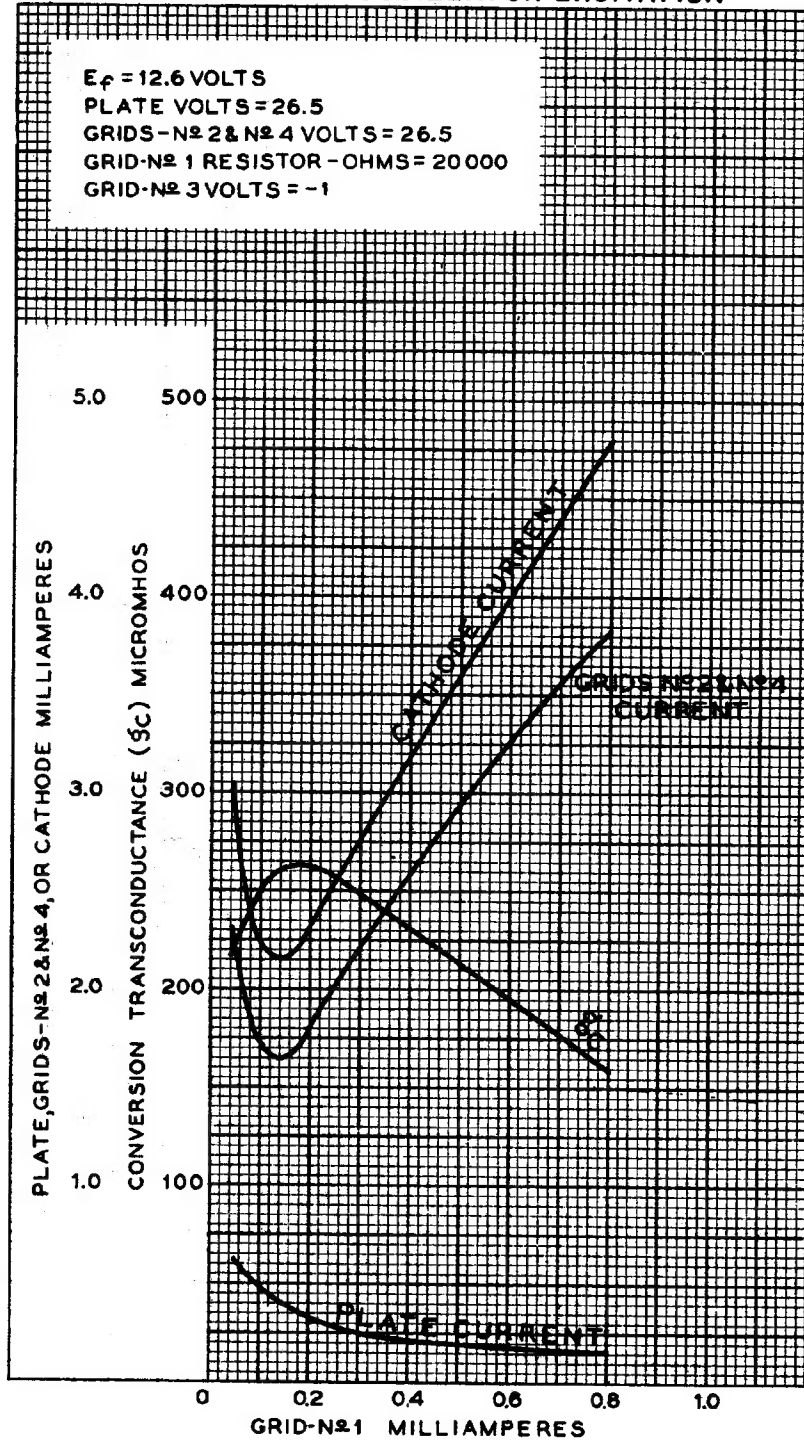
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12SY7



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OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION



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